

LETTER

TO THE

PRIVATE SECRETARY TO HIS EXCELLENCY
THE GOVERNOR OF BOMBAY,

WITH

EPITOME OF COLONEL H. BRUCE'S REPORT

UPON THE

RIVER GODAVERY, &c.

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To the PRIVATE SECRETARY to

His Excellency the GOVERNOR of BOMBAY.

SIR,—A recent paragraph in the public journals announced that on the return of His Excellency Sir Bartle Frere to England, he will be at once consulted by Her Majesty's Government, upon the merits of the several rival applications for an extension of the Imperial guarantee upon Indian Railways. I therefore, presume to offer the accompanying MS. pamphlet for the perusal of His Excellency, and to state that, should it be deemed worthy of being copied—either wholly or in part—it is freely at his service for that or any other similar purpose.

It will be noticed that the pamphlet was written at a crisis fraught with imminent peril to the greatest of all our great manufacturing rests at home; but I confess with grateful pride, that, severe as that memorable trial was, its actual consequences fell far short of my fears; and that the large section of our countrymen, who were directly and indirectly affected by the civil war in America, endured and conquered its effects upon themselves with a fortitude that is without a parallel in the history of nations.

To avert the recurrence of such a fearful peril to ~~our~~ vast manufacturing population at home; to give full play to the immense productive powers of India; and to insure its steady progress in wealth, peace, and civilization; it is almost idle to say that the extension of Railways is imperative and indispensable; and that new lines, or extensions of existing ones, should simply have the precedence given to them, in the order that is rigidly due to the produce, the population, and the political condition, of the districts they are intended to intersect.

It is not for me, as a perfect stranger to His Excellency, to intrude my opinions upon the preference that may or may not now be due to certain proposed lines; but I may, perhaps, be permitted to say that upon the two main topics of the pamphlet—namely, the River Godavery and the proposed Railway—my humble opinions, so far from having changed, have ripened under the events of the last five years into a deep-rooted conviction. The attempt to make the Godavery a navigable river is still to my mind an utterly preposterous delusion; aggravated by an enormous waste of public money, at a time when State deficits have become somewhat chronic, and when there is a cry on every side, for a largely increased Government expenditure upon rational and remunerative public works.

I still think also that the proposed Bérar and

East Coast Railway—whether viewed in its industrial, commercial, administrative, or political aspect—is a great Imperial and public necessity ; possessing claims to immediate practical action upon it, that will well bear comparison with any other proposed line or extension line in India.

The chief grounds for these opinions are given in the accompanying pamphlet ; and I now do myself the honour of submitting them respectfully to His Excellency, for such consideration as they may be worth.

I have the honour to be, &c.

(Signed) GEORGE TAYLOR, C.E.

EPITOME
OF
COLONEL H. BRUCE'S REPORT
UPON
THE RIVER GODAVERY,
WITH REMARKS THEREON,
AND SOME NOTICE OF
THE GREAT INDIAN PENINSULA RAILWAY,
AND THE PROPOSED
BERAR AND EASTERN COAST OF INDIA RAILWAY.

Madras, September 1862.

PREFACE.

The object of these pages is two-fold, first to expose the true character of the River Godavery for navigation ; and, second, to invite attention to the proposed Berār and Eastern Coast of India Railway.

In pursuing the first object, the writer has derived great assistance and pleasure from Colonel H. Bruce's recent Report upon the Godavery; a copy of which is here given, to enable the reader to determine how far it has been rigidly epitomised; and how far the facts it reveals, combined with the writer's own knowledge of the subject, sustain his firm conviction, that the navigation of the Godavery is a preposterous delusion.

In his remarks upon the proposed Railway, the writer has endeavoured to give its prominent features ; to define, also, its true relations to other public undertakings, existing and contemplated ; and to show that its construction is fraught with issues to India and to England, of a magnitude that it is impossible adequately to estimate.

This ~~title~~ ^{trifle} pretends to no originality, as it is for the most part only the *resumé* of a correspondence that the writer has been engaged in for years upon the principal topics that it embraces ; and

it is for the reader to decide how far he has made out his case, upon the two chief objects of his remarks. To that verdict he will most respectfully bow; and if it lead to the abandonment of a hopeless chimera, and the saving of a vast sum of public money from utter waste, the writer will rejoice to think that he has not been altogether an unprofitable servant in the interests of the public.

If still more happily his poor efforts contribute in any small measure to the accomplishment of the proposed Railway, he will be cheered to the last day of his life, with the conviction that he has done something to avert a recurrence of the deep affliction, that is now the lot of large masses of our industrious countrymen—an affliction that makes the heart of every true Englishman to bleed, and commands the deep sympathy of men of every race and every clime.

GEORGE TAYLOR.

Madras, 27th September 1862.

COLONEL H. BRUCE'S MEMORANDUM ON THE GODAVERY.

The different rivers embraced under the Godavery navigation project are the Godavery, Wurdah, Prenheta, Wyne Gunga, Indrawatty, Sebberry, and Pyne Gunga. The three first, however, are the rivers with which we have principally to do.

The Wurdah takes its rise somewhere in the Baitool District, west of Nagpore, and after flowing for some distance in a south-east direction is joined by the Wunna, which, passing under Hingunghat, falls to the south, and forms its junction with the Wurdah at a place called Sweet, eighteen miles south of the latter place. At this confluence are the falls of Zoonraic, and under them is the village of Chuhmundur, which is supposed to be the limit of the engineering operations at present contemplated.

The Wurdah flows on to the south-east until a little before reaching Chandah it is joined by the Pyne Gunga, when, losing the names of Wurdah and Pyne Gunga, the united stream continues under the name of Prenheta to its junction with the Godavery, a few miles below the station of Sironcha. Midway between these confluences is situated the third or Devalamurry Barrier, extending round in a curve for about fifty miles, and

midway down this Barrier the Wyne Gunga discharges itself into the Prenheta.

From the confluence of the Godavery and Prenheta below Sironcha to the sea the river carries the former name, although joined at intervals by the Indrawatty and other tributaries above specified. Thirty miles below Sironcha lies the second or Enchampally Barrier, and eighty miles below this again is placed the first or Sinteral Barrier, whence to the sea there are no material obstructions to a partial, though not perennial navigation.

Thus the great line of water communication proposed is obstructed by three Barriers, and runs as follows :—

	Miles.
1. From Chulmundur to Kirmirree and Salegoan (at the head of the Dewalamury Barrier)	90
2. The length of the Barrier	30
3. From Mogelee (at the foot of the third Barrier) to Pilmellah (at the head of second or Enchampally Barrier)	85
4. The length of the Enchampally or second Barrier to Daodula	18
5. From Daodula (at the foot of second Barrier) to Dumoogoodium (at the head of first or Sinteral Barrier)	70
6. Length of Barrier to Badrachellum	15

7. From Badrachellum to Dowlaishwaram ... 105
 From Dowlaishwaram to the sea there is at
 present canal navigation in length. 32

I started from Nagpore on the 27th June, intending to take boat at the nearest place where there might be sufficient water. Passing Hingunghat on the 28th June I found the Wunna River had not filled sufficiently to float even a canoc, and I, therefore, repaired down its banks and those of the Wurdah until I reached Wunoda, a town situated about twenty miles above Chandah.

At Wurroda the local authorities informed me that there was still a deficiency of water; however, upon examining the state of the river myself, I found that, perhaps, canoes might be able to float down. The river had arisen a little some days before, but had fallen again almost as much. It, therefore, stood abreast of Toolanna perhaps eighteen inches or two feet above its dry weather height.

A raft consisting of two canoes, each about fifteen feet long and fourteen inches in diameter (beam), lashed abreast with a space of about four feet between them, and a light stage over all, was, therefore, constructed by us during the day of the 29th and on the morning of the 30th June 1862. Colonel Taylor, Inspector General of Police, Central Provinces, (who accompanied me as far as Chandah,) and myself embarked at the village of Toolanna opposite Aptee on the right bank. The raft drew about twelve inches of water.

Our progress was remarkably slow, and we had literally to be dragged by main force over a small rapid before we had progressed two miles. The same process had to be gone through over shoals abreast of the villages of Seloo, Murgooan, and Bailsenee. At Seloo I was at one time fearful we might have to give up the river altogether, and at Bailsenee I am sure we should have had to do so, but for the rain which fell during the whole day and caused a slight rise through the loop of several miles formed by the river below that village. The worst part of the river that we experienced was all throughout these two channels. The one branch was impassable from rocks, and the other nearly so on account of very shoal water. We pulled up for the night at the village of Chandore, having been nearly thirteen hours under weigh.

Heavy rain fell during the whole night (30th), and on the 1st July we again cast off, reaching Arrastee (the Chandah Ghat) at 1 o'clock p. m. without further difficulty, the heavy rain having swollen the rivers. Thus in twenty hours we managed to get over, perhaps, thirty miles of river.

I had been led to expect that the little *Mayflower* steamer (which had been with some risk and considerable difficulty warped over the third Barrier last year) would have reached Chandah in time for me to have availed myself of her. However, it turned out afterwards that she was unable to leave her moorings at Kirmirree, the head of the

third Barrier, until the 4th July, from want of water and other causes. Finding that the steamer did not appear, I again took canoe at Ballapore (the southern Ghat of Chandah) at noon on the 4th July, and on the 5th July at 10 A. M. met the *Mayflower*, which had started the previous afternoon, and she conveyed me back from a little above the village of Scerpore, about fifteen miles into Kirmirree. The general course of the Wurdah to this point is tortuous, and the current even in the floods is decidedly sluggish. This latter is, doubtless, owing to the bed of the river consisting of a succession of pools and runs, the water descending into basin after basin (some of them of considerable extent and great depth) over intermediate shoals. Thus in the cold and dry season the shallower the water the more rapid the current. In some places—for instance in the centre of these large basins, which sometimes deepen to twenty or even thirty feet—there is hardly any perceptible current, and it takes a very high rise in the rains to cause the stream to run with any thing like uniformity throughout its course. The width of the river varied bank to bank from about one hundred and fifty to two hundred and fifty yards. The banks were fringed with very much less jungle than I had expected.

Having inspected Kirmirree, I crossed over to Saligoan on the right bank to prepare for my journey of thirty miles overland to cut across the

head of the river in which rests the third Barrier. With much difficulty a few coolies were collected—for the place is a jungly waste—sufficient to carry the light things I had with me. I started from Saligoan at 9 P.M. on the 5th July. The line runs through a desolate jungly tract, very sparsely inhabited, and hardly affording a single fowl in the shape of supplies throughout its length. Travelling as rapidly as we could, the village of Mogelee was reached just before dark on the evening of the 6th July, and here I found the steamer *Queen* awaiting.

The tramway under construction is still in a very backward state, and of so light and temporary a description, that I am afraid it will suffer very much during the present rains. Indeed, I question the economy of such flimsy works, and I feel pretty confident, before this temporary work is in efficient working order, it will be found to have entailed an expense as great as a good metal road. Furthermore, I think it problematical whether it will ever succeed. Under any circumstances it cannot possibly be ready for traffic for another year.

In this part of the country there is a very great scarcity of labour of all kinds, and artificers are far more difficult to procure than common coolies. Now, although the tramway may demand on the whole fewer hands than a road, still many of the hands required for the one must be more skilled than those required for the other; and carpenters,

sawyers, and other artificers, not used in road making, are just the people it is almost impossible to secure for the tramway. There are none in the neighbourhood, and the country has so bad a name for fever, that strangers can hardly be tempted by high rates to work there even during the healthiest part of the year.

In this place it may, perhaps, be best to say a few words on the much-canvassed subject of cotton, and then to describe the adaptability of the river route as far as Mogelee (at the foot of the third Barrier) for this and other produce of Berar and the Nagpore Province. Having done so, I shall then describe the river route downwards from Mogelee.

Now, generally speaking, cotton tracts in the southern portion of the Nagpore territory are situated all around Hingunghat, which is, perhaps, the greatest centre and mart. They extend onwards from Hingunghat nearly to Nagpore on the one side, and down to Chandah and Woon in the Nizam's territory across the Wurdah on the other. To the west and north-west Natchengaon, Arvee, and Deolee are all great cotton-growing circles, and the two former considerable marts likewise. Oomrowtee is the mart of the Berars, and in order to give some idea of the amount of commercial intelligence passing between Omrowtee, Nagpore, and Hingunghat, I may state that it would alone support a telegraph line.

Now horse expresses constantly pass backwards and forwards after the arrival of every English Steamer in Bombay.

Of all these places Hingunghat produces the cotton which, owing to its length of staple and quality, fetches the highest price in the market. It is impossible to estimate what the annual produce of the above described tracts may be, for accurate trade returns have never been kept. Last year the cotton crop failed, the year before last there was an over average crop, and the prospects this year are not as yet above ordinary expectation.

There are two annual cotton sowings—the “Bunnec,” just after the first fall of rain; and the “Jirrec,” just before the last fall. The first takes place between 15th June and 15th July, the latter in all September. It is calculated that less than six months put a crop into the market; it may, therefore, be said that the whole of the cotton every year is ready for export before March. Then comes a general rush for carriage to get down to the coast before the rains set in.

From inquiries made by me at Hingunghat and Wurroda, not only of the Government officials, but of the cotton brokers and Patels of villages, I gathered that no native has ever yet ventured cotton by the Godavery. The floods come too late for their purpose, and the risks have hitherto been too great.

From ten thousand to twenty thousand bojahs of cotton are said to come to the Hingunghat mart alone every year, according as the crop is bad or good. Now a bojah consists of two bales, each bojah weighs from twelve to twelve and a half maunds. The cotton maunds being twenty-four pounds, five bojahs make one cart load. Of the above quantity about one-quarter evaporates into local consumption, and the rest is available for export. The cotton cultivation has not materially increased within the last few years, indeed the out-turn now is said to be a good deal less than it used to be forty years ago; and some of the old Dullals informed me that they remembered when the produce was nearly, if not quite, double what it is now.

Up to within the last twenty-six years the whole of the cotton from about the Hingunghat tract used to pass to the eastward finding outlets to the sea viâ Bendara, Raepore and the Mahanuddy River towards Juggernaut and Masulipatam; since that period the flow of this cotton has quite changed. First of all the route viâ Nagpore and Mirzapore was gradually opened out, and then that towards Bombay. Gradually with the decline of exportation to the eastward, Hingunghat grew up into importance as a great cotton mart as well as a cotton-producing tract.

At present the Bombay and Mirzapore routes divide pretty equally the cotton; the old eastern

routes are completely shut up. The cause of this may be attributable in some degree to the fact of the eastern road viâ Raepore haven fallen very much out of repair, so much so as to be almost impassable. Indeed, I was informed that the old masonry bridges standing above swamps and ravines alone marked its former course.

When the Bombay route was first of all opened out, the cost of sending a bojah to that part was 5 Rupees. It then increased to 10, and now stands at 12 Rupees per bojah, or 60 Rupees per cart load. The cart hire to Mirzapore is now 9 or $9\frac{1}{2}$ Rupees per bojah, or about 45 Rupees per cart load. From Hinunghat a cart can reach Bombay in about fifty days, and Mirzapore in about forty. The carts used are almost all Madrassee ones, engaged at Kamptee (near Nagpore) and sent down to Hingunghat to load. As long as carts are obtainable no one ever thinks of hiring Brinjarah bullocks, the wastage of cotton being so great upon pack animals.

It seems strange and unaccountable that whilst within the last few years the population has certainly not decreased—rather the contrary—and the value of the produce has been enhanced more than fourfold, yet there is no increase in the cultivation of cotton in these districts. The natives themselves do not attempt to afford any satisfactory explanation, merely suggesting that sometimes the rains are unfavourable, and sometimes the seed will not

germinate. I am myself inclined to question whether any portion of the greatly enhanced prices of the last two years has yet reached the ryots. It takes some time before these poor ignorant people become alive to their own advantages, and meanwhile the native brokers and agents consume most of, if not all, the increased value. It may be that the quantity of cotton grown depends upon the quantity that can be conveyed to the coast. No doubt all the carriage at present available is annually taken up.

I am reluctantly drawn to the conclusion that any rapid increase to the cotton cultivation in these districts must (for some years at least) be stimulated by advances made on the spot by the agents of European houses, and these agents will have to assume all responsibility from the time the produce is handed over upon the fields.

No doubt under the native raj the settlements may have been unfavourable, but still we have held the country now eight years, a period sufficiently long to have enabled us to put an end to any vexatious arrangements—if any such were handed to us—that may have impeded this very important branch of commerce.

I am sure the attention of the present Chief Commissioner of the Central Provinces will be turned to this, and I am likewise in hopes he may be found to advocate a permanent settlement of

these rich, but certainly not hitherto over-cherished, tracts. However, as I before said, immediate increase to the cultivation can, I fear, only be prompted by money advanced upon the crop.

Having said this much regarding the production of cotton, I will now revert to its means of exportation.

At present cotton or other produce of the Nagpore or Upper Nizam's Territory, taking the Godavery route, would have to be conveyed in the first instance to the banks of the river by carts. it may be to Chuhmunder, or it may be to Chandah; but still a cart would have first of all to be used, and then the produce could not be moved by river until after the first rise, which may happen between 15th June and 15th July, according as the rains are early or late. This produce, therefore, might be detained two months (more or less) on the banks of the Wurdah, for the sake of being conveyed down that river fifty or eighty miles to the head of the third Barrier. The goods would then be landed and taken overland by tramway across the Barrier or thirty more miles. Now it is certainly a question whether any merchant would consent to transhipments at the end of thirty or fifty miles, unless, indeed, the advantages were far greater than is at present apparent. Thus cart, river, and tramway would cause a probable detention of two months, and the

breaking of bulk (which merchants are so adverse to) no less than three times.

The nature of the Wurdah is such that it cannot, in my opinion, be navigated by steam for more than three months in the year,—that is to say, speaking with certainty, now and again it may be open for three and a half months, but merchants could never calculate year by year (and they must always go on the certainty and not on the uncertainty,) that the river would be open except during the months of July, August, and September. The last trip made by the *Mayflower* last year was towards the end of September. Subsequently she has tried twice to get up, but failed to advance as far as Chandah. The water appears to fall rapidly the moment the rains cease.

I believe a metal road has already been provided for in the Nagpore estimates as far as Chandah; therefore I would propose that the Godavery project should bear the cost of what I am about to suggest, namely: -That the tramway across the third Barrier should be abandoned, and that a good metal road should be continued from Chandah to the foot of the Barrier about Mogelee. This would be about seventy miles, and a metal road would in the end be less costly than the present tramway, which will be both temporary and flimsy. For a road there is metalling on or near the spot, and abundance of fine timber fit for the bridges, should it be thought that the expense of masonry

ones need not, in the first instance, be incurred. The earthwork of the tramway, as far as it goes, would come into play for the road. The advantage of the road would be that carts once loaded in the months of March, April, May, and June, could, if necessary, go right through to the foot of the third Barrier without any breaking of bulk at all.

Merchants might be induced to carry their goods sixty or even one hundred miles for the sake of nearly hundred miles of unbroken water carriage, whilst they would not go one quarter the distance for the sake of thirty or forty miles. As, for instance, from the cotton marts to any point on the Wurdah above the third Barrier.

In this manner I conceive the bulk of the export produce for the Godavery route would be conveyed to Mogelee before the rains. But, during that season, I would provide at the point where the road would intersect the river (about Kirmirree) good platform ferry boats, so that loaded carts could, if necessary, be crossed over at any time during the floods.

If more provision was found to be required for the traffic during the rains above the third Barrier, even then I would not advocate the general employment of steamers upon so limited and precarious a navigation. I would cause a number of light rafts to be constructed, each raft to rest

upon a couple of light iron pontoons and form a kind of stage. These rafts should be of the simplest construction, and so fitted that they could readily be taken to pieces, and put up again in a few minutes. They might all be made in the Dowlaishwaram workshop.

During the rains these rafts might be used to float down merchandise, and as soon as they reached the lower terminus they could be taken to pieces, loaded into a flat, and towed up-river by one little steamer, which might be kept up for this sole purpose. In this way I think the river above, and also the third and worst Barrier might be effectively arranged for. At any rate, merchants would have the choice of waiting on the banks of the Wurdah for the floods, or occupying the time by pushing on their carts for eighty or ninety miles (or whatever the distance might be) down to the foot of the third Barrier.

Now below the third Barrier the navigation is, no doubt, better, and the river is very much wider and also deeper, especially east of the confluence of the Godavery proper, about Sironcha. This river, rising, as it does, far away in the great ghâts about Nassick, catches the first fall of the very early monsoon of the Western Coast, and is probably always swollen by the 20th June. The Wyne Gunga, too, is said often to rise early; it probably catches at its source some of the drainage caused by the local rains that generally fall previous

to the regular monsoon storms, such as those known in Calcutta in May as north-westerns.

I think, too, from what I hear, the water lasts a little longer, and it would be safe to estimate that the navigation of this reach of the river may be continuously maintained for four months of every year.

From Mogelee I proceeded on board the steamer *Queen* down to Pilmellah, the head of the second Barrier, touching at Sironcha *en route*. The distance is about 48 miles, the navigation good, and we accomplished it in about seven and a half hours' steaming. The *Queen* is a vessel apparently well suited to the special navigation she is employed upon.

From Pilmellah we crossed the second Barrier, along the line of the tramway, six and a half hours to Daodulah. This tramway is much better constructed than the upper one, and so far forwarded that I should be disposed to let this part of the experiment proceed.* It will be opened to traffic, I should think, within two months.

From Daodulah I passed down the second reach in the steamer *Shamrock*; we did it easily within the day. The river was quite navigable, and perhaps averaged three-quarters of a mile in width, but might be improved in one or two places (near Albaka and Gwallapelly) by a little blasting.

When we reached Dumoogoodium, which is the head of the first Barrier, and the head quarters of Captain Haig, I had the advantage of making the acquaintance of that officer, and he was good enough to show me all over the works at Dumoogoodium, the Annicut works, and the canal and tramway.

I left Dumoogoodium to cross the first Barrier (fifteen miles) at night, and reached Badrachellum, at the foot of it, the next morning. In the evening the steamer *Arthur Cotton* arrived from Dowlaishwaram, and conveyed me back to that place during the next day. Thus the whole journey from Mogelee to Dowlaishwaram may be easily performed in three days and two nights. The third Barrier (thirty miles) would probably take more than a night, but when the traffic arrangements are perfected I may safely say that during four months (to be on the safe side) of the year the journey from Mogelee to the sea will be ordinarily accomplished in three days and three nights, exclusive of stoppages. The upward journey will, of course, be much longer, and it would take the steamers to make the voyage in each reach against stream from three to four days. The overland part of the journey would, of course, occupy the same time both ways.

Now Chandah is on the border of the cotton districts; therefore, if the road was finished from Chandah to Mogelee, and there existed a bullock

Train establishment upon it, then the journey might be accomplished somewhat in this way :—

	<i>Down.</i>	<i>Up.</i>
Chandah to Mogelee	48 hours.	2 days.
Mogelee to Pilmellah (steam)	9 „	3 „
Pilmellah across second Bar-		
rier to Daodulah	6 „	$\frac{1}{4}$ „
Daodulah to Dumoogoodium		
(steam)	10 „	3 „
Dumoogoodium to Badra-		
chellam, second Barrier...	6 „	$\frac{1}{4}$ „
Badrachellam to Dowlaish-		
waram (steam)	12 „	$3\frac{1}{2}$ „
Dowlaishwaram to Coconada		
(canal boat)	12 „	$\frac{1}{2}$ „
	<hr/> 103 hours	<hr/> 12 $\frac{1}{2}$ days.

The navigation of three reaches of the river, generally during the time it is full of water, is decidedly superior to that of either the Ganges or Indus at any period of the year. The rocks, which are of course permanent, have either a good depth of water over them, or, when it is shallow, are quite visible, and the sand which forms the shoal is of a coarse grain, which very rarely shifts. This is a great advantage over the other two rivers I have specified; not only, therefore, is a knowledge of these sandbanks easily gained by the natives, who generally command the steamers, but the river itself is susceptible of

improvements by reason of the banks seldom shifting.

I have observed all down the river that there is a very serious want of gauges, and a regular registration of the height of water, such as exist on the Ganges. Had these been kept from the first, we should already have had five or six years' experience of the actual state of the water in the river throughout the year, instead of still going on pretty much by guess.

Accurate traffic returns are also required both in the Nagpore territories and on the Godavery, and I think immediate attention should be given to these two subjects.

Upon the whole, I think too much stress has been laid upon the length of river navigation to be opened out, and not enough upon the importance of feeders running at intervals from chief towns inland to the banks of the river. This should decidedly form a portion of any navigation project that may be prosecuted. Doubtless it may be found that one or two of the tributaries are partially navigable for some distance above their junction with the parent stream; indeed Captain Haig informed me he believed the Godavery proper was so navigable for 60 or 80 miles. I do not think, however, any money should be laid out on these river-beds at present.

I have observed, too, that below the Pap Konda Hills (situated about Koyidthi), and nearly midway between the first Barrier and Dowlaishwar, boats are continually plying up and down, but above these hills none are to be seen. I think the authorities should ascertain the reason of this. The hills on either side fall suddenly into the river at a great slope, and the current is strong enough between them to check the passage up of boats unless they be tracked. I do not think, in the present state of the rocky jungly banks, it would be possible to track boats. Should my surmise be correct, no time should be lost in clearing towing paths. I can in no other way account for the sudden stoppage of boat navigation at the hills above named.

I think the time has arrived when the Government should determine what works are to be carried on, and these works should be properly supplied with funds. At present, or up to very recently, surplus moneys alone were laid out on the permanent works, after providing for the tramways and other temporary constructions.

The future sanction for the Upper Godavery ought, in my opinion, to come under four heads:—

- 1st. Flotilla.
- 2nd. Canal and Annicut at Dumoogoodium.
- 3rd. Tramways and Roads across the Barriers.
- 4th. Feeders along the line.

I am decidedly of opinion that the Government ought to continue to spend money upon the freeing of the Godavery navigation, and that money so laid out will prove a profitable investment as soon as the works are complete. I would advocate the prosecution of the Annicut and canal at the first (Sinteral) Barrier with all speed, and in the mean time Captain Haig should arrange as best he can for getting passengers and goods temporarily across. These works would occupy, perhaps, two years, and we have a good example of the success of similar ones at Dowlaishwaram, whence regular canal navigation with Coconada has been maintained for some years.

Once these permanent works at the lower Barrier were finished, we should have uninterrupted water communication for about 225 miles upwards from the sea for one-third of every year. I would likewise advocate the completion of the tramway at the second or Enchampally Barrier; and thirdly, I would advocate the completion of a good metal road from Chandah viâ Kirmirree and Saligaon to Mogelee, at the foot of the third or Dewalemurry Barrier, thus bringing the latter point in direct road communication throughout the year with Hingunghat and Nagpore.

Simultaneously with these works, feeders should be taken at intervals along both banks of the river below the third Barrier, and towing paths, as

before referred to, constructed along the side of the few miles of hills above Dowlaishwaram.

Beyond the above nothing further should at present be done ; when, however, additional works are undertaken, the canal and Annicut at the second or Enchampelly Barrier would, of course, be the next most pressing.

Thus the works I have specified for immediate execution would enable us to test what the Godavery was likely to prove, and data thus afforded would enable the Government to judge as to whether it would be worth while to create water carriage around the two upper Barriers, or even to undertake the last contemplated project of the Godavery advocates, of storing water in its tributaries so as to create a perennial navigation. This storing of water in the tributary rivers would be an undertaking of enormous expense, and would only bear consideration as a question for improving the navigation. Irrigation works could be more economically and effectively created by following the native system of occupying the numerous smaller valleys, and checking the flow of water by numerous dams and embankments. The nature of the country above the delta is such that a great consolidated volume of water confined to one line would be of little use for irrigation purposes, but rather there should be numerous smaller reservoirs studded about. It is not main streams that should

be operated upon away from the delta, but the smaller feeders to these streams.

My own impression is that Mogelee will turn out to be the great shipping point when a road is made to it. It must be borne in mind that the heaviest portion of Captain Haig's estimate is for the third Barrier; and by leaving the annicut and canal works there in abeyance until the water communication had been rendered uninterrupted to that point we should avoid the heaviest expenses, until we have found out whether necessity existed for them. Thus it should always be borne in mind that the permanent works should be successively taken up from the sea upwards.

I am not so sanguine as to imagine or contemplate that the Godavery will ever monopolise the whole of the traffic of the Central Provinces; but it ought certainly to carry its fair share, nor do I imagine that Captain Haig will be able to complete the works I have above indicated as pressing within his estimate; but I feel sure that if the river can be rendered thoroughly navigable for four months in the year at anything near the amount of Captain Haig's estimate, it will repay Government to undertake the works. Further I would add that such works may, perhaps, be worth double the present estimate. As to the storing of water, and the creating of a perennial navigation, that is a question which it will be time enough to consider

as soon as all the other works I have specified are finished and tested.

Whilst I advocate the Godavery navigation project as far as I have indicated, I by no means think, as I have before said, that it is ever likely to monopolise all the carrying trade from Central India; hence I would not deprecate any endeavour to create more outlets elsewhere. It is access to the sea which is the great want of the Central Provinces, and whether such outlets be by road, river, or rail, they will be certain not only to cause much benefit to the rich provinces of Central India, now almost hermetically sealed to our mercantile community and to our export trade, but likewise to stimulate further industry and production, and bring up those valuable tracts to the standard Nature assigned to them when she gave them a soil of unsurpassed richness and a regular annual irrigation.

But whilst on the subject of the Central Provinces, I would most strongly advocate that the whole of the Upper Godavery works, in fact the navigation works as distinct from the delta irrigation works, be handed over to the control of the administration of the Central Provinces.

The Madras Government can have no possible interest in their result, and the officers are entirely remote from that Presidency. Whereas the boundary of the Central Provinces runs all down the

left bank of the river to within forty miles of the head of the delta irrigation works and seventy miles of the sea. As the Chief Commissioner of Nagpore must be within easy reach of the river during his annual tours, and will thus be constantly afforded an opportunity of inspecting the progress of the undertaking, he will, no doubt, become interested in its success, and will be able to regulate, guide, and control the action of the officers employed. Indeed, the progress of the Central Provinces depends upon this and other outlets.

I append a copy of Captain Haig's Regulations for the transit service of the Godavery, and I may add that I cannot help thinking it is almost a pity they were promulgated before the works had been further advanced; for any detention or failure at first is sure to be productive of much disappointment to the public, and perhaps injury to the project, and would tend to retard that attraction to the route which complete success (only to be achieved when the works are finished) is sure to lead to.

In conclusion, I will add that no one can descend the Godavery without being struck with what Captain Haig has already accomplished under many difficulties and drawbacks, and it is impossible not to perceive the great personal devotion and earnest perseverance and energy he has thrown into his labours. He sees difficulties

only to combat and surmount them and nothing discourages or deters him from the object he holds steadily in view.

H. BRUCE, Lieut-Colonel,
Inspector General of Police in India.

Coconada, 13th July 1862.

EPITOME OF COLONEL H. BRUCE'S
REPORT UPON THE GODAVERY; AND
SOME REMARKS THEREON.

Colonel Bruce's Report shows—

1st.—That *Hingunghat* is the centre and chief mart of the great cotton field of Berar, which embraces Oomrawuttee on the west, Nagpore on the north, and Chandah and Woon on the south; the latter place lying in the territories of His Highness the Nizam.

Remarks.—Nothing is said, because probably nothing is known, of any other neighbouring cotton fields in the Nizam's dominions; but it is not at all unlikely that on the route from Woon, Chinnoor, Parkul, Warungul, and Kummumett to Rajahmundry, there are large breadths of fine cotton soil, ready for a very great development.

2nd.—That no native merchant has ever yet sent cotton down the Godavery; the delay and the risks being too great.

Remarks.—The experiment was made in former years, by two English firms in Calcutta; but in both cases it proved a ruinous failure.

3rd.—That the produce of the Berar cotton field is now sent in bullock carts, in about equal

quantities from Nagpore to Bombay, and from Nagpore to Mirzapore.

Remarks.—There is, therefore, a large traffic carried on between Nagpore and Jubbulpore, and thence to Mirzapore. It would appear, however, that the Great Indian Peninsula Railway Company have abandoned their original project of a loop line, from Ootran, near Nusseerabad, to Nagpore, and thence up to Jubbulpore. If this be so, the proposed Berar and Eastern Coast of India Railway would not end at Nagpore, but would eventually be continued up to Jubbulpore, and would thus not only secure the large traffic between the latter places, but would also effect a junction at Jubbulpore with the East Indian Railway and the Great Indian Peninsula Railway, that would give it an unbroken railway connection with both Calcutta and Bombay.

4th.—That the Berar cotton is at present carried to Bombay and Mirzapore in bullock carts, whose average load is 5 bojahs of 12 maunds each, and the local maund being 24 lb.; that the hire for each cart is 60 Rupees to Bombay, and 45 Rupees to Mirzapore; and that these carts are about 50 days on the road to Bombay, and 40 days to Mirzapore.

Remarks.—An average load of cotton is, therefore, 1,440 lb. The rate of 60 Rupees

per load to Bombay is exactly one penny per lb., or £9-6-8 per ton for the whole journey ; and taking the distance from Nagpore to Bombay, by the existing tortuous roads, to be 550 miles, this rate is a fraction more than 4 pence ($4\frac{.9727}{.727}$) per ton per mile.

The rate of 45 Rupees per load to Mirzapore is exactly 3 farthings per pound, or £7 per ton for the whole journey ; and, assuming the distance to be 400 miles, this rate is again very nearly $2\frac{3}{4}$ (2.70) pence per ton per mile.

The higher rate of cart hire to Bombay is, of course, owing to the much more difficult and tedious journey over the formidable Western Ghats. This difference, however, in the two roads, is not implied in the time given by Colonel Bruce for the respective journeys ; because if a load to Mirzapore is usually 40 days on the road, it is very probable that a load does not reach Bombay in less than 60 days. The loss by pilfering, the quantity eaten stealthily by the bullocks, and the injury by adulteration, on these wretchedly tedious journeys, are all too well known to need any comment ; and, to crown this sluggish, hopeless, obstructive traffic, Colonel Bruce shows that it is incapable of extension, because "*all the carriage at present available is annually taken up.*"

Contrast these clogs to cultivation and commerce with the coming vivifying influence of railways !

The Great Indian Peninsula Railway will necessarily be a costly line, because it has to surmount the stupendous precipices of the Western Ghats ; and if it be completed from Bombay to Nagpore for less than £14,000 a mile, the engineers will have earned for themselves another chaplet for their unrivalled genius, and their indomitable labours upon that magnificent work. The average cost of this line for its whole length of 1,266 miles is indeed estimated at only £9,476 per mile ; but, assuming that this estimate will not be exceeded, it is not to be expected that the average cost of the line from Bombay to Nagpore will be less than the sum just mentioned, viz. £14,000 per mile.

The comparatively heavy cost, therefore, of this line, and its proportionate working expenses, will demand proportionate traffic rates ; and cotton cannot be carried upon it from Nagpore to Bombay for less than $1\frac{1}{2}$ annas or $2\frac{1}{4}d.$ per ton per mile without imposing upon the Government guarantee.

Assuming that the distance by rail from Nagpore to Bombay will be reduced to about 480 miles, it follows that cotton carried over

it at $2\frac{1}{4}d.$ per ton per mile will amount to £4-10-0 per ton for the whole journey, or nearly a halfpenny (0·4821) per pound.

In addition, however, to this cost of carriage by rail to Bombay, there will be the cart hire from Hingunghat, Woon, and Chandah up to the terminus at Nagpore; the respective distances from these places by the present roads, being at least 53 miles, 95 miles, and 107 miles. Taking, therefore, the average of these distances, and estimating cart hire at only $3d.$ per ton per mile, the cost of carrying cotton to Bombay will stand thus, ~~namely—~~

	£	s.	d
85 miles of cart hire @ $3d.$ per			
ton per mile	1	1	3
480 do. by rail @ $2\frac{1}{4}d.$			
per do.	4	10	0
	<hr/>		
	£	5	11 3
	<hr/>		

per ton, or nearly $\frac{1}{2}$ th (0·596) of a penny per pound.

The Great Indian Peninsula Railway will, therefore, give only a partial impulse to an increased supply of cotton, because it skirts rather than intersects the great cotton field; and because its higher traffic rates, *plus* the cart hire from the considerable distances just

- given, will not be without their repressive influence upon production.

The complete development of this great cotton field, if indeed its capacities are not boundless, can only be attained by the construction of the proposed Berar and Eastern Coast of India Railway; which would not only strike it at its nearest point to the seaboard, but would pierce its chief mart, and traverse through its centre in a continuous line up to Nagpore.

The cost of this Railway, substantially made for the heaviest traffic, would certainly not exceed £8,000 a mile.

The distance by it from Coconada to Chandah, the nearest known point of the cotton field, would be about 350 miles; but, as before surmised, there may be large areas of fine cotton soil lying much nearer.

The distance from Coconada to Hingunghat would be about 400 miles, and from Coconada to Nagpore about 450 miles. At one anna or $1\frac{1}{2}d.$ per ton per mile, which would be a remunerative rate on this line, the cost of carrying cotton from the above places *direct* to Coconada would be as follows, ~~viz.~~—

From Nagpore £2-16-3 per ton, or $\frac{3}{10}ths$ (0·3013) of a penny per pound.

From Hingunghat £2-10-0 per ton, or rather more than $\frac{1}{4}$ th (0·26785) of a penny per pound.

From Chandah £2-3-9 per ton, or less than $\frac{1}{4}$ th (0·2344) of a penny per pound; and from any nearer cotton fields in the same proportion.

It will no doubt be objected to the respective rates of 2½*d.* and 1½*d.* per ton per mile, that Indian Railways are already carrying cotton for less. Granted; but they are not doing so at any profit, but at the expense of the public, through the medium of the Government guarantee; and before these unprofitable traffic rates become a chronic evil, and a positive discouragement to the Railway extensions, now so imperatively called for; it will be well to reflect that the great excess of the working expenses upon Indian Railways, has chiefly arisen from the spurious and suicidal liberality—practised at the expense alike of the public and the shareholders—of carrying cotton and other produce at rates that do not and cannot pay. This is just one of those false steps so easily made, but not so easily retraced; and the best interests of India demand that immediate attention be given to it, before it becomes irremediable. Let it never be forgotten that the vast wealth,

- and the unlimited resources of India, are only to be unlocked by trunk railways, aided by tramways and good roads ; and that any discouragement to their extension, is a deadly blow to the progress of the country, and the happiness of the people. Where Indian Railways are carried through the centres of produce and population ; where they are constructed with plain substantial economy, and worked with practical ability and experience, upon traffic rates fairly remunerative ; it is as certain that they will realise handsome returns to the shareholders, as it is that they will be the right hand of power and economy to the Government ; that they will rouse the enforced indolence of millions, into a happy and prosperous industry ; that they will open up new regions and new rewards to commercial activity ; and that they will diffuse peace and progress, civilisation and prosperity, throughout the land. But if this bright future is marred at the outset, by unprofitable traffic rates, eked out with the Government guarantee ; the public and the shareholders will suffer alike ; English capital will be no longer forthcoming for Indian Railways ; and India will continue to exhibit the same sad paradox of an **E**mpire of **P**overty, possessing boundless but inaccessible wealth.

But to resume. It has been shown that

the cotton of Berar cannot be carried to Bombay by road and rail for less than £5-11-3½ per ton ; and it is equally clear that it would be carried by the proposed Berar and Eastern Coast of India Railway direct to Coconada for less than half that sum.

Assuming, also, that the freight of cotton from Bombay to Liverpool is £4 per ton *weight*, and from Coconada as high as £4-10-0 ; it follows that the transit of Berar cotton to England *via* Bombay will cost at least 35 per cent. more than its transit *via* Coconada : while, as regards all the other valuable produce of Berar, classed for freight as “ dead weight,” it will be carried down to Coconada and landed at Liverpool, for the same sum or even less, than it can be carried from Berar to Bombay.

The advantages to the merchant and the manufacturer, of having cotton and other produce carried to the seaboard in as many hours as it now takes days, are too trite for comment ; and the vast superiority of Railway transit, both as regards time and money, to any other means of transit, that are practically obtainable to any extent in India ; is a question that has long risen above discussion with all intelligent and practical men. Navigable rivers and canals are, beyond doubt, most desirable communications, and should

- be encouraged to the utmost wherever they are practicable ; but there is one little condition essential to their usefulness, namely, an adequate and constant supply of ~~water~~ **WATER**.

To what extent does this condition exist in India? Absolutely nowhere, but at the foot of eternal snows of the Himalayas; in a few short scattered backwaters on the coast ; and be it said with all sorrow ! in the disordered brains of a few unhappy individuals, whose cherished delusions have blinded them to the most glaring facts ; and whose obtrusive and incurable monomania has left them only worthy of the derision of a child. Treated with practical skill, with integrity of purpose, and with a grateful estimate of their real and unspeakable value, the rivers and nullas^h of India may be made a literal realisation of the fabled Lydian **Pactolus**, whose waters were medicine, and whose sands were gold. Their fertilising waters, laden with the rich alluvium of the monsoon floods—and now running wastefully to the sea—should be arrested at every practical point, and devoted^d with jealous care to irrigation *alone*. Thus used, they would change a churlish sterility into a magical luxuriance ; and convert vast wastes into fruitful plains, gleaming and teeming^g with the richest produce of the land : but ^{it} perverted to crude and senseless

projects for irrigation and navigation combined; Indian rivers will only become the nurseries of charlatans, and an impious abuse of the beneficence of the Creator.

5th.—That, although the population of Berar has increased, and the price of cotton has risen fourfold; there is no appreciable increase to the quantity grown, for the following reasons, ~~namely~~:

1st.—Because the ryot or cultivator has received no benefit from the higher prices; that benefit having all gone into the pockets of the native brokers and agents;

2nd.—Because the quantity grown is limited to the means of carrying it to the coast; and

3rd.—Because no more carts are obtainable than those now annually taken up.

And further, that an increased supply will be attained by advances made on the spot, by the agents of European houses.

Remarks.—The present condition of this great cotton field, may therefore be compared to a vast storehouse, capable of being filled at pleasure with the finest cotton, but never containing more than a few bales of inferior quality; which are doled out through the key hole, because the door is always locked, and because there are no means of carrying larger quantities away. No doubt the ryots of Berar

possess to the full the inheritance of their race, in being the helpless bondsmen of the rapacious Bunnias and Sowcars ; and it admits of no question, that gradually their chains will be broken by the presence among them of European agents. Not, however, by the agents of the Manchester manufacturers—as suggested by some amateur mercantile economists—but by the agents of the great mercantile houses of Madras, Calcutta, and Bombay. The miller—as it has been recently said—does not grow his own corn ; for the reason, probably, that he would find himself to be but a sorry farmer.

The woollen manufacturers do not send their agents into Germany and Australia for wool ; nor do the silk manufacturers send their's into China for silk ; and it may be safely assumed, that the intelligence of the Manchester cotton spinners is quite proof to the quixotic proposition of sending their agents into the interior of India for cotton. The proposition, indeed, is rather bold and imperfect, and would have been much more complete, with the counter suggestion, that the merchants of Calcutta, Madras, and Bombay, should simultaneously despatch *their* agents to Manchester and Glasgow, for the intelligent purpose of superseding the manufacturers ; and of showing to the world how admirably,

and with what signal profit, special functions can be performed, without the least previous experience. There is not much danger, however, of this inverted experiment being made; and it is almost idle to say, that the only true and effectual medium for obtaining an ample supply of cotton from India is that of the mercantile houses of the three Presidencies, who are quite ready to throw their wealth, their practical experience, and their utmost enterprise into the field; and by a healthy competition to create a supply equal to any demand; at rates fairly remunerative, alike to the producer, the exporter, and the manufacturer.

But, alas! in the present condition of India, productive industry is cowed, and commercial energy is almost paralysed, for want of internal communications; and until railways, tramways, and good metalled roads open up the country, any marked increase in the supply of cotton or other produce is hopeless. Pre-eminently is this the condition of the finest cotton field in India, now under notice; and until its inert resources are unlocked by a railway running through its centre down to Cocanada, the harrowing cry of "*send us cotton,*" that now comes wailing to us from England, will still be uttered in vain; the manly hearts of hundreds of thou-

sands of our starving artizans will still quiver with want; and the pride of England's gigantic industry, will remain bowed to the dust in misery and despair.

6th.—That if *all* the works now proposed by Colonel Bruce for the improvement of the Godavery were to be completed, the produce of Nagpore and the surrounding district *might* be sent eastward to Cocanada by the following process, namely —

1st.—By *Bullock Carts* from Nagpore, Hingunghat, and Woon, &c. to Chandah, and there to lie on the banks of the Wurdah from the 15th of June to the 15th of July; accordingly as the rains are early or late. On taking to the river at Chandah bulk would be broken for the first time.

2nd.—By *River* from Chandah to Kirmirree, at the head of the third great Barrier, and there break bulk for the *second* time.

3rd.—By *Tramway* from Kirmirree to Mogelee, at the foot of the great Barrier, and there break bulk the *third* time.

4th.—By *River* again from Mogelee to Pil^mwellah, at the head of the second Barrier, and there break bulk the *fourth* time.

5th.—By *Tramway* again from Pil^mwellah to Dao^mdulah, at the foot of the second Barrier, and there break bulk the *fifth* time.

6th. *By River again from Daodulah to Cocanada; if the dam and canal at the first Barrier are successful; and if the other obstacles below that point are surmounted; and there break bulk the sixth time.*

Further, that the present "flimsy" works at the third great Barrier should be abandoned; and a road made instead, running from Chandah down to platform ferry boats at Kirmirree; and continued thence from the right bank of the river down to Moglee; to the end that it may be necessary to break bulk only *four* times; assuming, that is to say, that eventually all obstacles below Daodulah will be removed.

Further, that if "*once those permanent works at the lower Barrier were finished, we should have uninterrupted water communication for about 225 miles, upwards from the sea, for one-third of the year.*"

Remarks.—If the writer of these remarks were to act upon his own impulse, he would not add one word to the simple facts thus exposed in Colonel Bruce's admirable Report. But it must not be forgotten that an organised and unblushing pertinacity, has long been devoted to the propagation of this wretched Godavery chimera; and that it has become almost an article of faith, with an influential section of the public in England, that the improvement of the Godavery is a feasible pro-

ject, and that it will become the easy outlet of an immense traffic. It is also to be borne in mind, that only a very small portion of the English public—whose credulity has been so shamefully abused—will even have the advantage of reading Colonel Bruce's Report, unless it is brought into prominent notice. It therefore becomes an imperative duty to give it the widest circulation, and to strengthen its revelations by every possible means; to the end that enormous sums of public money may be diverted from utter waste, and applied to works of real utility and crying necessity; and that the much-abused Presidency of Madras may escape the jeers and vituperation, that will be her inevitable reward for any further prosecution of this unparalleled folly.

One happy result of Colonel Bruce's Report is at least certain, namely, the abandonment of the works at the third Barrier. Let us now examine the merits of the project, when thus shorn of its chief feature.

Colonel Bruce shows conclusively, that the utmost possible improvement of the river, can only render it navigable *for four months in the year* for 225 miles; and he suggests that a new road from Chandah might attract produce down to Mogelee at the foot of the

third Barrier, and thence down the river. By this proposed road the produce of Berar would have to travel in bullock carts for the following distances, namely—

From Nagpore to Mogelee	180 miles.
From Hingunghat to do.	127 do.
From Woon to do.	97 do.
And from Chandah to do.	73 do.

Under the difficulties and delays of this proposed road, these carts would not be hired for less than 4*l.* per ton per mile; if indeed they could be hired at all; and if not, by whom would a bullock train be established and maintained? Clearly not by the Government, unless it assumes novel functions; and unless there would be other work ready for that new and powerful “Carrying Company,” for the remaining 8, 9, or 10 months of the year. To give the proposition, however, its best aspect, we will assume that carts would be readily obtained at the low rate of 3*l.* per ton per mile. At this rate cartage would cost as follows, namely—

	£.	s.	d.	
From Nagpore to Mogelee	2	5	0	per ton.
From Hingunghat to do.	1	11	9	do.
From Woon to do.	1	4	3	do.
And from Chandah to do.	0	18	3	do.

- The *time* that these carts would be on the journey is not so readily ascertained, but a glance at the main features of the road may be of some assistance in the inquiry.

Commencing at Nagpore, the first river to be crossed is the *Dham*, on the north of Hingunghat; the next is the *Wunna*, at Hingunghat; the third is the *Pol*, about 8 miles south of that place; the fourth is the *Dhowl*, about 9 miles further south; the fifth is the *Sir*, between Wurroda and Bhanduck; the sixth is the *Eraes*, near Chandah; and the seventh is the *Prenheta*, at Kirmirree, which it is proposed to ford by platform boats; besides all of which, there is a full proportion of nullahs lying along the entire route.

Two considerations may here be assumed, namely—1st, that the bullock carts would travel down to Mogelee before the rains set in; and 2nd, that the above rivers are neither bridged, nor likely to be, for any traffic that will ever be carried down to the Godavery. For the purpose of this inquiry we will assume, further, that the carts cross the rivers and nullahs, and ford the Prenheta at Kirmirree, without anything more than the usual delays and mishaps; and that the produce arrives at Mogelee, ready to be carried down the Godavery, immediately after the rains have made its navigation practicable.

Under all these not unfair assumptions, produce *might* reach Mogelee from Nagpore in 18 days, from Hingunghat in 13 days, from Woon in 10 days, and from Chandah in 7 days ; but unfortunately even this lively picture of Indian traffic, is a little dashed by a consideration that would not be without its influence at least upon the cart owners. The down journey to Mogelee might be achieved pleasantly enough, saving that it would be made at the hottest season of the year ; but the *return* journey would probably be much less cheerful. The down journey also need not be made in the middle of the rains, but the return journey could not escape them ; excepting by the fullest exercise of that patient resignation for which the Hindoo has no rival ; and by the bullocks and men resting from their labours at Mogelee, for the rather indefinite period that would elapse before the rains ceased. Possibly, however, there might be some compensation for this latter delay, in the shape of a return load ; but until that anticipation rests upon some reasonable grounds, it may be safely dismissed from consideration.

If, therefore, the cart owners preferred returning through the rains, what would be their progress ?

The Prenheta river would at that time be changed from a deep dry gorge, into a rushing

torrent, all but—if not quite—unfordable, either by platform boats, or any other contrivance short of a steam ferry boat.

The other rivers and nullahs would also be swollen bank-full, and could only be forded by waiting until the subsidence of the floods. Is this picture too highly coloured? Let those give the answer, who know by experience, what it is to travel in India during the monsoon.

Giving, therefore, to all these points their fair consideration, the questions that arise are simply—1st, Is it in the least degree probable that any produce from Berar will ever be carried down this road to Mogelce—even if the navigation of the Godavery were eventually to be made practicable for the enticing period of four months in the year? 2nd, Will not the Great Indian Peninsula Railway carry it all down from Nagpore to Bombay until a better outlet is provided? And 3rd, Is not that outlet the proposed railway from Nagpore to Cocanada, and no other? It is for the merchants of Madras and the public to give the answers; and upon those answers it depends very materially, whether Bombay is to receive all the present stinted produce of Berar; or whether it shall not be increased a hundred-fold, and sent down by railway to Cocanada.

The river Godavery and its contemplated navigation now demand attention.

Plainly described, this river is nothing but a mountain torrent, with an average fall of nearly 2 feet per mile, and containing three immense rocky Barriers, more than 60 miles in length, and rising at a rate varying from $3\frac{1}{2}$ feet to $6\frac{3}{4}$ feet per mile.

Besides these stupendous rapids, there are other formidable rocks lying at intervals in its course; and below the first Barrier, the river debouches into the delta, through a narrow precipitous gorge, of the grandest aspect, but of the most dangerous character. For a brief period of the year, the river is swollen into a mighty cataract, rising from 30 up to 100 feet above its summer level; leaping over the Barriers with irresistible fury, and throwing its "hell of waters" into the maelstroms that whirl and boil below.

Rushing through the gorge into the delta, these destructive floods completely change the character of the river, and leave its *regimen* the most fickle and impracticable of any river in India. Within four short months—and frequently much sooner—the floods rapidly subside, and the river resumes its normal condition. Fed with no perennial springs, and rising where snow is never seen, its

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mighty barriers and stupendous gorge are soon revealed in all their rugged and impassable grandeur; long reaches of shallow water bristle with rocks; and vast beds of sand lie bared and blazing in the sun. From the head of the delta downwards, the river becomes a chain of large lunkas or islands and ever shifting sand-banks; skirted and intersected to a very large extent with blind tortuous channels that almost defy delineation—and much more any permanent improvement—by their perpetual change. In this part of the river the annual havoc made by the monsoon floods, is seen in the enormous indentations made upon its banks; while during the subsequent dry season, further ravages are constantly made upon them, by the combined action of the sun and the lippering of the waves, which detaches immense masses of alluvium, and topples them into the channel, with the continuous boom of distant thunder.

The facts given by Colonel Bruce show that any produce, brought down the river from Mogelee, must break bulk at least *four* times before it can be put on board ship; but it remains to be proved, that bulk would not have to be broken nearly twice four times.

If the dam and canal at the first Barrier are either not made or not successful, bulk must

clearly be broken *six* times ; and if again the proposed cargo boats are not equally adapted* for the river when it is full, and for the crude canal with its cramped locks, running from Dowlaishwaram to Coconada, it is no less certain that bulk must be broken *seven* times. The canal at the first Barrier possibly may succeed in giving a continuous waterway at that point, but it will unquestionably be at the expense of the irrigation of the delta ; because it is a well-known fact, that below the dams or weirs (locally called “ anicuts ”) at Dowlaishwaram, the water is now often insufficient for irrigation ; and upon this subject the much-respected Collector of Rajahmundry could furnish valuable testimony, in the form of returns, showing the remissions that have been made to the ryots, on this score alone, during the last seven years. To intercept water, therefore, at the first Barrier, for the purpose of feeding another canal, must necessarily prove an aggravation of this deficiency ; and, after all is done, it is very possible that this new canal will only give a continuous waterway for only the few weeks, or even the few days, in the year, that the river is filled with the floods.

With regard to the proposed cargo boats, it is confidently assumed, that they will *not* be equally adapted to the impetuous river, and

the sluggish canal: so that bulk must be broken again at Dowlaishwaram, before it can proceed by the canal down to the Coast.

Lively imaginations have loved to rhapsodise upon the fleets of vessels and their heavy cargoes, that are for ever gliding down the canal to Coconada; but, stripped of all that systematic and mendacious tinsel, these noble "vessels" become nothing but dirty cockle-shells, known by the name of dhonies; and their imposing "cargoes" sink into dribblets of produce, varying from two to five tons each. The canal itself is simply a combination of rude excavations, slovenly embankments, and cramped locks with cracked walls; varied at intervals by following the sinuous reaches of the old channel, that received the adjacent watershed.

In the dry season, its navigation is often difficult in places, for boats of the lightest draught; while at other times they have to contend in another place, with a current running almost like a mill race. Dredges are frequently at work to keep it barely open; and the writer has been aground many times in that vaunted canal, when travelling in a paddle boat, drawing only 20 inches of water.

Partly by the current, partly by a favouring breeze, and partly by the sluggish and laborious

process of *poleing*, the dhonies carry their “cargoes” from Dowlaishwaram to Coconad~~ā~~ in about 30 hours ; but the average time of their return is fully 60 hours.

Is such a canal a fitting adjunct to the contemplated traffic upon the river? Surely not! But even the existence of this superb channel rests upon a frail tenure.—The dam across the Godavery at Dowlaishwaram *was* breached three years ago, and *it will be breached again*. Its section is altogether too slight; its foundations are notoriously weak, consisting of brick cylinders (fancifully called “wells”) sunk only 6 feet instead of 16 feet into the underlying sand; there is no front apron to shield the dam from the impact and the scour of the floods; the rear apron of roughly packed stone (termed with exquisite irony “cyclopean” work) is constantly sinking, and under frequent repair; and the retaining wall at its foot—which was only an after-thought—consists of a reedy shallow strip of rough masonry, resting upon a sponge of sand.

The expense and delays of cart-hire down to Mogeelee, would of themselves be a clog to any real traffic upon the river; but these obstacles become utterly insignificant, when compared with the far higher cost of carrying

- produce upon the river. Be it remembered also, that the cost of providing and maintaining a flotilla and its adjuncts, would be as much for *four* months as for twelve, save in the item of fuel for the steamers; and to crown this attractive traffic, it would be made utterly impracticable, by the superadded difficulties, irregularities, and delays that would be for ever occurring on the river.

Time was—and that not long ago—when time was held to be of no value in India. But the placid age of somnolent routine, and of ever fruitful pagoda trees, has passed away; and is succeeded by a vivifying commercial activity, that tolerates no drags, and brooks no delays. An *intermittent* traffic is at all times a *prohibitory* traffic; but a tedious, difficult, and doubtful traffic of four months in the year, placed in juxtaposition with a Railway always at work, is an absurdity that is absolutely unique; and even to accomplish this modern marvel, what remains really to be done? Nothing less than—

1st.—To complete the dam and canal at the first Barrier; to remove the other impediments in the river; to construct the tramways at the first and second Barriers; and to make the road from Mogelee to Chandah: but for what fabulous sum these

permanent works will be completed, who shall say? •

2nd.—To provide cargo boats for the Coconada canal, and landing stages at that place and at Dowlaishwaram.

3rd.—To provide steam tugs and flats for the Godavery, from Dowlaishwaram to Daodulah; bullocks and trains also for the 1st and 2nd Barriers; and landing stages at Badrachellum, Doomoogoodium, Daodulah, and Pilmellah.

4th.—To provide steam tugs and flats between Pilmellah and Mogelee; a landing place also at the latter place; and ferry boats at Kirinirree.

5th.—To erect offices, goods' sheds, and fuel stores, &c., and to appoint and maintain a costly establishment consisting of superintendent and writers, officers and crews for the steamers, boatmen, lascars, and coolies, &c., &c. ' .

And all this enormous outlay must be made to obtain a doubtful navigation *for four months in the year!*

Some men and their money are said to have very little adhesion, and, perhaps, a sprinkling of that class is still to be met with; but they are not so plentiful as to leave it

- within the range of possibility, that any company could be found to undertake such a transient, fitful, and dubious navigation as this. Even supposing that the Government, in the liberal and determined effort to attain, if possible, a great public good, were to offer to complete all the permanent works, and to provide the flotilla and all its appendages, free of any charge, on the simple condition that the company accepting it, should work the traffic with their own officers and establishments, upon their own terms; is it at all likely that the offer would be accepted?

And if it were, at what rate could the company afford to work it? For the utmost traffic that could possibly be obtained, both up stream and down, it is the writer's firm opinion that 6*d.* per ton per mile would not cover the company's bare expenses for establishments, officers, men, and fuel; because all but the last item would be a constant charge, while the traffic would only be worked for a fraction of the year. The cost alone, therefore, of such a transit of produce and goods would be utterly prohibitory; besides which, the constant irregularities and delays that would beset it, would leave it still more hopeless, and still more insuperable.

But let it be remembered also, that the traffic on the Godavery, would be conducted

under other disadvantages of the very worst character.

It is true that the steamers and the flats would come down the river with the floods; but these floods would often be dangerous, and the journey would be very commonly made under heavy and incessant rains. Returning up stream against such floods, the steamers with the flats at their stern would crawl up the river at a most wretched rate; at the time, above all others, when the banks of the river would be reeking and seething with the deadly malaria of the overhanging jungles. Would Europeans and Natives be readily obtained to work a navigation like this? And is it conceivable that the Government would permit soldiers to be moved at such a season, and at such a snail-like pace, through this region of fever and death? Would Commissariat officers and Commissariat stores for Secunderabad and Kamptee be sent up the river under such risks, to be landed at Mogelce—if happily they would arrive there at all—and to march thence for hundreds of miles, through continued rains, and over a country deluged into a vast and all but impassable puddle? Surely not! And, if not, what earthly object is to be attained by spending another rupee upon this hopeless, senseless illusion?

7th.—That, in Colonel Bruce's opinion, "the future sanction for the Upper Godavery, ought to come under the following heads, namely :—

1st.—Flotilla.

2nd.—Canal and Anicut at Doomoogoodium.

3rd.—Tramways and Roads across the Barriers.

4th.—Feeders along the line."

Further, that Colonel Bruce is also "*decidedly of opinion, that the Government ought to continue to spend money upon the freeing of the Godavery navigation, and that money so laid out will prove a profitable investment, as soon as the works are completed.*"

Remarks.—Attention has already been given to the first three works here recommended by Colonel Bruce for "future sanction;" and the fourth on the list now calls for some notice.

Feeders! of what and from whence?

The left bank of the Godavery is a wild unexplored region of dense mountain jungle, where the tiger and cheetah reign supreme; ~~and~~ yield^{ing} only some valuable teak timber, but of small meteings, and almost inaccessible at any practicable cost: while its sparse and miserable population, is a race of semi-savages, whose origin and history have no record, and whose condition lies in the very lowest scale of degraded humanity. The opposite or right

bank of the river is very nearly of the same wild unproductive character, for a long distance into the interior; and the nearest line of population and produce, lies at an average distance from the river of more than 40 miles; and is only to be approached, by surmounting and defiling through the sterile and difficult region that intervenes.

The proposed feeders would therefore be of great length, and proportionate cost; and when made would they ever carry one ounce of traffic down to the river? Assuredly they would not, because it would remain far easier, far cheaper, and far more expeditious, to send the produce by the present direct and continuous route from Warungal, Kummumett, Ashwarapettah, and Gootalla, down to Rajahmundry and the coast.

If these feeders were made, would produce be carried over them for such distances, and through such wilds, during the heavy monsoon rains, to lie soaking afterwards upon the banks of the Godavery until the flotilla arrived; and then to begin the process of breaking bulk, that would have to be repeated over and over again? Is such an expectation in the least degree rational? It is for the most sanguine advocates of the Godavery navigation to give the answer.

The writer of these remarks is now bound to admit, that the high gratification he has derived from the perusal of Colonel Bruce's facts, has been greatly marred by the perusal of his opinions; and it is humbly, but confidently, submitted, that those facts and those opinions cannot be reconciled.

Had the writer known nothing more of the Godavery, and its proposed improvements, than what Colonel Bruce has himself revealed, with so much intelligence, and integrity of purpose, it would have struck him with amazement to meet with such opinions, based upon such grounds. But the simple facts disclosed by Colonel Bruce, combined with the writer's own knowledge—so feebly expressed in the preceding remarks—compel him to reiterate his humble but firm conviction, that the whole project for the improvement of the Godavery is a hopeless illusion; that it will end in utter failure, and in an enormous waste of public money; and that it ought to be abandoned and given to the winds, at once and for ever.

It is not pleasant to be disappointed in the hope and in the generous effort to attain a great public good.

It is not agreeable to discover, that credulity and good faith have been given to a preposterous delusion.

But it is far worse to stifle and conceal the stinging conviction of having been misled; and to pursue the deception, until it stands revealed as a gigantic folly, and ^a colossal sarcasm upon human intelligence.

Such are the directly opposite opinions of Colonel Bruce and the writer upon this momentous question. With all deference and all respect, they are now submitted to the scrutiny of a liberal and enlightened Government, and to the impartial verdict of an unprejudiced and discriminating public.

8th.—That “if the road was finished from Chandah to Mogelee, and there existed a Bullock Train Establishment upon it, then the journey might be accomplished” in about $4\frac{1}{2}$ days from Chandah to Cocanada, and in about 12 days returning.

Remarks.—If a Bullock Train ever is established on that road, it must clearly be by the Government; because there would only be a short period of the year, that the establishment would not be solely employed in eating off its own head; and how far that description of industry would be pleasing to the Government, it is perhaps not very important to determine.

Granting, however, that it will exist hereafter, it would then perhaps not be absolutely

impossible, that the down and up journey might be made in the respective times given by Colonel Bruce. But it could only be done as a *feat*, under the rigid conditions that the traveller was unencumbered with camp and baggage; that ample relays of bullocks were at his immediate service; and that steamers, trains, and canal boats, were all waiting his arrival, and ready to start at the instant. Even with these rare advantages, it would be no boy's play; and it may be safely asserted, that a Bullock Train travelling from Chandah to Mogelee—73 miles—in two days, would be an *Express Train* indeed; seeing that the average speed of bullock carts on Indiaⁿ roads is not 12 miles a day. It would therefore be good work to travel from Chandah to Mogelee in four days, instead of two days, as given in Colonel Bruce's Time Table.

But the *journey* of a solitary traveller, and the time that *produce* would be on the road, the river, the tramways, and the canals—including all the stoppages to break bulk, and the other incidental delays—are in practice two totally different things: and in no case would produce, carried in this sluggish jerking fashion, reach Cocanada from Nagpore in less than 26 days; or from Hingunghat in less than 21 days; or from Woon in less than 18 days; or from Chandah in less than 15 days;

neither would the upstream journey be made,
in less than

- 21 days to Chandah,
- 24 do. to Woon,
- 27 do. to Hingunghat, and
- 32 do. to Nagpore.

So that in point of fact, Colonel Bruce's time table only shows what may be done as a *feat* by a highly-favoured traveller; and is no guide whatever, to the time in which traffic could be carried up and down the river.

9th.—That “as to the storing of water, and creating a perennial navigation; that is a question which it will be time enough to consider, as soon as the other works are finished and tested.”

Remarks.—Colonel Bruce has evidently chosen to adopt the safe and respectful reticence, that is due to a transcendant conception of Engineering genius; and the example is at once contagious and compulsory, from the utter inability of ordinary mortals to comprehend that Titanic inspiration.

It is therefore only humbly submitted, that *when* the time has arrived, for considering the facility of storing the monsoon floods, to secure a perennial navigation for the Godavery; attention will be equally due to the propriety of applying the surplus water store, to the double purpose of converting

- the raging surf of the Coromandel Coast, into the unrippled calm of a Venetian Lagoon; and of preserving a perennial high tide, in the Bay of Bengal.

10th.—That while Colonel Bruce advocates the Godavery navigation project, as far as he has indicated, he by no means thinks that it is ever likely to monopolise all the carrying trade from Central India; and that hence he would not deprecate any endeavour to create more outlets elsewhere.

Further, that “it is access to the sea, which is a great want of the Central Provinces; and whether such outlets be by road, river, or rail, they will be certain not only to cause much benefit to the rich provinces of Central India, now almost hermetically sealed to our mercantile community, and to our export trade; but likewise stimulate further industry and production, and bring up those valuable tracts to the standard nature assigned to them, when she gave them a soil of unsurpassed richness, and a regular annual irrigation.”

Remarks.—This admirable passage is a large atonement for the paradoxical opinions that partially disfigure another part of the report; and is of itself a sterling testimony to the ability and singleness of purpose that Colonel Bruce devoted to his task, and to the discrimination of the Government that selected him for such an important duty.

It is therefore a real pleasure to admit, that the discrepancy observable between the facts disclosed by Colonel Bruce, and some portion of his opinions, is very largely redeemed by this impressive and most significant passage; which proclaims with eloquent power, that the river Godavery is *not* the true outlet for the rich produce of Berar; and that a commercial highway of a far different character, is imperatively required to develop the "unsurpassed richness" of that highly-favoured province. Nor is it by any means impossible, that this noble deduction from Colonel Bruce's own investigations, was penned under the irresistible conviction, that nothing can or will, to any appreciable extent, "stimulate further industry and production, and bring up these valuable tracts to the standard nature assigned to them," but a Railway striking through their centres, and giving them the nearest and quickest "access to the sea," on the Eastern Coast.

Be this as it may, no apology is offered for the surmise; because it has been for years the deep conviction of the writer, that the unequalled resources of the Central Provinces of India; the immense expanse of the "unsurpassed" cotton soil of Berar; the incalculable but hidden productive power of the magni-

ficent territory of Hyderabad ; and the teeming produce of the great delta of the Godavery ; will all ~~be~~^{lie} stifled and inert, like talents hidden in a napkin or buried in the earth ; until they are made to leap into a perennial life, and a boundless development, by the construction of the proposed Berar and Eastern Coast of India Railway.

With this avowal, it now becomes the writer's duty, to give some reasons for the faith that is in him upon this momentous question ; and to preface them with a brief sketch of the approximate route, that would be followed by the proposed Railway.

It is well known that *Coringa* was the chief outlet for the produce of the delta, up to the time that the dams were thrown across the Godavery at Dowlaishwaram ; but those works entirely destroyed the navigation below ; and besides this, the branch river which bifurcates from the main stream, at the French Settlement of Yanam, has been gradually silting up, and a formidable bar has formed at its mouth at Coringa.

Upon the banks of this branch river lie the populous and once flourishing towns of Yanam, Neelapilly, Talaravoo, Seetarampoo-ram, Old Coringa, and New Coringa ; but from the causes above mentioned, and from others that might have been prevented, the

very large commerce that once flourished at these places, has rapidly fallen away, and is now diverted to *Cocanada*; which lies about 8 miles further up the Coast, in a fine roadstead free from surf, and affording excellent anchorage for vessels of any burden.

Cocanada has therefore become the leading port of the Eastern Coast. Its population has rapidly increased; its exports and imports have become very large; and the day is fast approaching, when this flourishing town will take its first rank among the maritime cities of India.

Commencing at *Cocanada*, the proposed Railway would strike through the heart of the delta, and be the welcome means of relieving the shallow circuitous canals, of some portion of their sluggish obstructive traffic; and of setting them free to some extent, for their legitimate and infinitely more profitable purpose of irrigation. After intersecting the large populations and the vast produce of the delta, the line would proceed through the important station of Dowlaiswaram, up to the busy and densely populous town of *Rajamundry*, from whence it would continue for about 12 miles further up that bank of the river, skirting another rich and populous country, until it reaches Raghoodavapooram. From that town the line would trend to the Goda-

very, and cross it near Gootalla on the opposite bank ; the latter place being one of the string of populous towns and villages, stretching up the right bank of the river, in close connection, for a distance of 5 miles. At this point the Railway would swerve from the rugged desolation, and the deadly malaria that for ever brood upon the banks of the Upper Godavery ; and avoiding this savage region of sterility, pestilence, and death, the line would proceed from Gootalla, through the large populations and the rich produce that converge to Nawagaram, Ashwarapettah, Kulloor, and the busy mart of Kummumett. Thence the line would trend again towards the Godavery, through a fertile district up to the dense populations concentrated at *Warungul*, Mulwara, and Haminkonda (which lie within 90 miles of Secunderabad) ; and proceeding due north would pass through Parkul, Rhamgeer, and Muntini ; immediately beyond which latter place it will recross the Godavery over to *Chinnoor*. From Chinnoor its route would lie through the rich and populous district resting on the right bank of the ^hPreⁿetha river ; passing ^gMog^hlee within about 20 miles ; and then, crossing that river near Seerpoor and Kirmirree, would continue through Dhaba direct up to *Chandah*, and there strike the nearest known point of the great cotton field

of Central India. Proceeding thence through Banduk, and within 12 miles of Woon, the line would pass through the centre of the great cotton field, pierce its chief mart at *Hingunghat*, and running thence direct up to *Nagpore* and *Kamptee*, would eventually be continued up to *Jubbulpore*, and there effect a junction with the East Indian and the Great Indian Peninsula Railways.

It is therefore quite clear, that from its commencement at Cocanada, up to its eventual terminus at Jubbulpore, this Railway would from first to last run through an easy country, and through fertile and thickly populated districts; besides giving the much needed direct "access to the sea," and an incalculable stimulus to the production of cotton, and all the other rich produce of Central India, such as no other communication, either "by road, river, or rail," can by any possibility ever afford.

With this sketch of the route, it may now be useful to cast a glance at some of the momentous results that will arise from this all-important Railway.

1st.—It would be an arm of inestimable power and economy to the Government, in the transit of troops and stores, to a point within 90 miles of the great Military station

of Secunderabad, and in conveying them also *direct* up to the other large Military station at Kamptee. In this respect alone the Railway would be of incalculable value to the Government, and which could be only faintly estimated by accurate returns from the Commissariat Department. Who shall say the amount of Government stores and other costly property, that have become utterly worthless under the difficulties and delays of the roads to those important stations?

Who shall state the annual average cost for the last 20 years, of moving men, material, and stores to those remote places? And who shall declare the disease and death that have decimated the troops, in toiling through many hundreds of miles through deluges of rain, or through the fiercer ordeal of an Indian sun? But above all, who will be bold enough to say, that until this Railway is made, all the untold horrors of Cawnpore and Jhansie may not be repeated at any moment; and rebellion, rapine, and murder, again stalk through the land, until it is again trampled out, at a cost of blood and treasure, compared with which the entire cost of this Railway would not be worth a thought.

2nd.—This Railway would be no less valuable to His Highness the Nizam of Hyderabad than to our own Government; a fact of which

His Highness not long ago showed himself fully conscious, by offering—through his able and enlightened Minister, Salar Jung Bahadur—5,000 Rupees towards the expense of a survey for a Railway from Moodgul on the Great Indian Peninsula Railway up to his Capital of Hyderabad.

There cannot therefore be a doubt that His Highness would give the utmost assistance, and his most active support to this Railway; because it would create a degree of prosperity throughout a large portion of his dominions, that would cast its present condition altogether into the shade.

His Highness and his talented Minister know quite well, that a work like this would give a solidity and lustre to his reign, and to the lasting welfare of his people, by acting as a silent but expressive monitor to an unsettled section of his subjects; of far more power, far more economy, and far more humanity than all the barbaric ‘pride, pomp, and circumstance’ of thousands of bayonets bristling on the plains; of countless swords flashing in the sun; of flaunting banners dragged through slaughter and blood; and of parks of ordnance belching forth carnage and death, and shaking the earth with their roar.

It would be an unwarrantable and insulting

reflection upon His Highness' intelligence, and fraternal love of his people, to imagine for one moment, that in conjunction with his excellent and patriotic Minister, he would not give his utmost aid to a Railway like this, that would give an unspeakable impulse to a peaceful and well-requited industry among his subjects, and create among them an enduring prosperity, such as hitherto they have never known.

Nor is it to be doubted, that His Highness would eagerly seize the grand opportunity that would be afforded by this Railway, of adding still more to the stability and prosperity of his dominions by the attainment of *another Railway*, commencing at Moodgul, Bellary, or Cuddapah (on the Great Indian and Madras Railways), and running direct through his capital to Warungul; and thereby secure to himself and his people, the inestimable benefits of an unbroken Railway communication with Calcutta, Madras, Bombay, and Cocanada.

3rd.—This Railway would create a new and ever increasing market for English manufactures; and, by rousing an involuntary indolence and poverty into a prosperous and happy industry, would bring the cheap fabrics of Manchester and Glasgow within the

reach of countless thousands, whose nakedness is now barely covered with a tattered rag.

It would carry English cloths, hardware, iron, tools, implements, and machinery, to dense populations, whose habits and industry are of the same primitive and unthrifty character, that marked them thousands of years ago.

It would carry the salt and the rice of the delta in vast quantities to populations, with whom the first is now an almost unattainable luxury, and to whom the latter is made a forbidden food, by the wretched poverty that has been the inheritance of their class for ages.

It would open up boundless fields of industry to the people, and raise them from a degraded class, now sustaining a mere animal existence upon a coarse and scanty food, into a regenerated race, standing erect in the honest pride of industrious manhood, and with hearts gladdened by an abundance of wholesome and invigorating food.

It would beget an incalculable increase to the rich and varied produce lying upon its entire route; and would carry down to the Coast a rich exchange of valuable timber, cabinet woods, dye woods, indigo, sugar, wheat, gram, oil seeds, and oil.

It would create a wide intercourse and a healthy competition among the native merchants, whose transactions are now confined to an area lying within a few miles of their own doors.

It would beget a large passenger traffic among hundreds of thousands, whose travels hitherto have rarely extended beyond the neighbouring pagodas; and to whom a journey of a hundred miles, has been little less formidable than a voyage to the antipodes.

It would create a large, healthy, and regular intercourse between the great English mercantile houses and their agents, and the oppressed ryots of the interior; and by thus freeing the latter from the cruel extortion of the native usurers, would secure to their unfettered industry its due and ample reward. To quote indeed the eloquent address made only a few days ago by His Excellency Sir Bartle Frere, the enlightened Governor of Bombay—

“Railways have already had a great effect in facilitating travelling into the cotton ~~for~~ districts, so that it is no longer impossible ~~for~~ the Bombay merchant to go himself, or send his own agent into the cotton district.

“*In this respect alone facilitating commercial intercourse, and enabling the merchant*

to visit the interior, *the Railways have already conferred on India a benefit, which would, I believe, be cheaply purchased by the whole cost of their construction.*"

This Railway would also carry troops and an enormous weight of material and stores, at all seasons of the year, and in a few hours, direct up to Kamptee, and to within an easy distance of Secunderabad.

But above all, it would create a boundless production of cotton throughout the wide expanse of the "unsurpassed" cotton soil of Central India; and by inviting the merchants of Madras and Coconada to establish their agents, their cotton gins, and their cotton presses, at each central station, this Railway would carry cotton direct to the seaboard by the shortest route, secure from theft, free from dirt and adulteration; in quantities without limit, and at a cheapness and speed of transit which no other "road, river, or rail" can ever approach.

4th.—This Railway would *create no antagonisms, nor prejudice any interests, either existing or prospective.*

In relieving the *Rajahmundry Canals*, of some portion of their wretchedly tortuous and sluggish traffic, this Railway would do a special service to the ryot, the merchant, and

the consumer ; and would no less subserve the direct interests of the Government, by helping to set free for irrigation *alone*, the water that is now wasted upon a fatuous combination of irrigation—(which of itself will always yield a rich return)—and navigation—that not only does not, and cannot pay its own working expenses, but also robs irrigation of half its value.

We cannot eat our cake and have it. We cannot in Southern India keep canals full for navigation, and keep them flowing for irrigation at the same time. We cannot stop evaporation and absorption through the long months of the dry season ; and we cannot at any practicable cost, obtain an equivalent by storing water, excepting for *Irrigation alone*. The delusion that exists upon this question is perfectly amazing ; and to show how it works in practice, take one instance among many others that have come under the writer's own observation.

Within a short distance from Dowlaish-waram, one of those slovenly shallow ditches—dignified as “navigable canals”—skirts a considerable tract of very fertile soil, that requires constant irrigation in the dry season, and for which the full irrigation assessment is paid to the Government, *minus* the remis-

sions that are constantly claimed for a deficiency of water.

When the irrigation channels that permeate this tract become low—which is a regular occurrence—a rude dam is thrown across the canal by coolies, until the irrigation channels are filled again. Meanwhile, as a matter of course, the irrigation and navigation below are *both* cut off; the dhonies lie high and dry on the sole of the canal; the paddy fields lie baking in the sun; and the poor ryots and boatmen are left to console themselves, by picking up the few coarse fish that lie floundering in the dry bed of the canal.

When the irrigation channels have received their supply, the coolies pull down the dam; and this magnificent example of navigation and irrigation combined, again flourishes for a short space, until this highly scientific process is repeated—a spectacle which the writer has witnessed over and over again for several months together.

It is therefore palpable to common sense, that every ton of traffic diverted by the proposed Railway from the “renowned Rajah-mundry Canals,” or in other words every cubic yard of water, which it would set free for irrigation *alone*, would be a direct and sub-

stantial benefit, alike to the Government and the people.

The proposed Railway would have nothing to fear from the *Godavery navigation* ; while the latter would have *every thing to gain from the Railway*.

Leaving the Godavery at a point within 50 miles of the sea-board, the Railway would not return to it for a distance of 200 miles ; and would then recross it nearly *close to Moglee*, which Colonel Bruce shows conclusively is the highest point up to which the Godavery can by any possibility be made navigable, for even four months in the year, and that too in the very worst season.

Even assuming that this transient navigation will be eventually attained, the proposed Railway would be *its only effectual feeder at Moglee*, by bringing and carrying away any traffic, that either the Government or the merchants might put upon the river.

So far therefore from the proposed Railway filching any traffic from the Godavery navigation, it would create it, and increase it to an extent that no other work could possibly accomplish.

Neither would this Railway be any detriment to the *Great Indian Peninsula Railway*.

On the contrary it would become its best adjunct. It has been already shown, that as a stimulus to the growth of cotton in Berar, the usefulness of the Great Indian Peninsula Railway will be curtailed by three causes, namely, its greater distance to Bombay, its comparatively heavy cost, and proportionate traffic rates; and its bordering instead of intersecting the great cotton field.

But the proposed Railway will give still greater facilities to the enterprise of the *Bombay merchants*, by *feeding their line* with cotton that would otherwise be carried to it in smaller quantities by bullock carts travelling long distances, at a slow and expensive rate, and over bad roads up to their terminus at Nagpore.

But above all this, the proposed Railway would open up vast tracts of the richest cotton soil, that will otherwise remain neglected and inert; and by increasing the growth of cotton a hundred fold, it would transfer one portion of that increase to the Great Indian Peninsula Railway; and would carry the vast surplus down to Cocanada, with a speed and cheapness of transit, utterly unattainable by any other means that can be devised.

Such are some of the momentous results, that would arise from the construction of the

proposed Berar and Eastern Coast of India Railway ; and it now rests with Her Majesty's Secretary of State for India, and the other members of Her Majesty's Government; with His Excellency the Viceroy and Governor General of India; and with their Excellencies the Governors of Madras and Bombay; to grant to these humble remarks any attention that they may deserve ; and to ponder upon the magnitude of the interests that are involved, alike to India and to England, in the accomplishment of this all-important work.

It is not very long ago that an illustrious English statesman declared, that England's true greatness lies within herself; and that so long as she is true to herself and to her possessions, she may look calmly on at either the meretricious glory of a vaulting and restless ambition ; or the far happier spectacle of a generous and ardent emulation in the race of commercial conquests, and in the peaceful triumphs of science, industry, and art.

But England *has not been true to herself, or to her possessions.* Lulled into a false and fatal security, by the enormous wealth flowing from a colossal industry, such as the world has never before seen; England has allowed an appalling calamity to steal upon her like a thief in the night, and to desolate the once

happy hearts and hearths of her noble artisans with a cruel famine, that has crushed , them into utter despair.

Years and years ago, eminent and earnest men foresaw all this, and gave their emphatic warnings upon the utter infatuation of staking the chief industry of England upon the frail tenure of an unbroken supply of the slave-grown cotton of America; and even the writer of these remarks followed humbly but earnestly in their wake, by reiterating that the stroke of a President's pen, the caprice of a Congress, the madness of a Democracy, a servile war, or a civil war, might cut off the supply of American cotton at any moment, and cast a huge pall of misery upon millions of our countrymen, which no living man might ever see removed, and which would give a shock to our gigantic manufacturing and mercantile establishments, that would rock them to their centres, and shake England's supremacy to its foundations.

Would to heaven that these warnings were at this moment nothing but an idle croaking dream !

Would to heaven that America was still making those gigantic strides in wealth, progress, and power, that have marked her history in every page !

But it is not so. That magnificent land is now riven to the core, with all the horrors of civil war ; and England too, from her own suicidal apathy, now lies trembling under a calamity, whose appalling magnitude will tax all the energies and the intellect of her statesmen to subdue ; and all the munificence, the patriotism, and the heroism of her people to surmount.

The cotton of America then *has failed* ; and if under the happiest and speediest restoration of America's prosperity, or if from any other cause whatever, England ever again relapses into the national insanity of depending upon America for cotton, so surely will it *fail again* ; and no less surely will the commercial and industrial grandeur of England again totter upon its centre, and the manhood of her stalwart sons again cower and wail under want and despair.

At a crisis like this, big with future destinies of England, India holds out a friendly hand, and says "*give us Railways, and we will give you cotton enough for all your wants.*"

Foremost among these indispensable works is the Railway so feebly advocated in these pages ; compared with which, either as regards its momentous value to the Government, to India, or to England, no other Railway,

existing, progressing, or contemplated, is a more imperative necessity.

To doubt the large success of this Railway, as an investment of capital, is to ignore the daily and ever increasing returns made by present piecemeal Railways of India. It is to shut our eyes to the petty traffic of the India of yesterday, consisting of a few spices; and to the vast commerce of the India of to-day, through which she contributes immense masses of produce to England's real wants, and takes in exchange an almost fabulous proportion of England's manufactures.

It is to forget that this vast commercial expansion, has forced itself into existence under the heavy incubus that still hangs upon the energies of India, in her wretched internal communications. It is in fact to believe that this almost unequalled commercial and industrial progress,—the growth of a brief decade—has already arrived at its summit, before roads and Railways have given to it a new and boundless impulse ;—and at the crisis too, when England is calling to India to increase her produce a hundred-fold !

But capital, like commerce, looks for a fair foundation, as well as fair prospects ; and it

is taxing even English enterprise too freely, to look for the construction of a Railway like this, without the guarantee—which in this case would assuredly be only nominal—and which the Government, in its enlightened liberality and foresight, has accorded to other Railways of far less paramount claims.

For some years these guarantees have been suspended by the Government, for reasons that both challenge respect, and command approbation; but it is humbly, although confidently, submitted, that the time has now arrived, when those considerations lose all their force, and cannot be sustained, in the presence of the mighty interests and the stupendous issues, that are now staked and trembling in the balance, upon the attainment of this Railway.

It is therefore for the wisdom, the patriotism, and the master intellects of Her Majesty's Secretary of State for India, of the other members of Her Majesty's Government; of the Imperial Parliament of England; and of the Council of India; to give their fiat upon the colossal issues now trembling upon this momentous question.

It is also for the capitalists, the merchants, the manufacturers, and the public of England, combined with the capitalists, the mer-

chants, and the people of India, to take instant and practical action upon this all-important work.

But if notwithstanding the present fearful crisis, and all the other momentous incentives to successful action, the proposed Berar and Eastern Coast of India Railway still fails to become an accomplished fact, we may as well fold our arms in despair, and confess at once ^{that} the energies of England are crushed, that her intelligence is dimmed, that her enterprise is gone, and that ^{her} unrivalled greatness is rapidly on the wane.

Colonel Bruce closes his valuable report, with a generous and graceful tribute to the ~~un~~increasing devotion and the indomitable energy displayed by Captain Haig in his most arduous labours.

Amenities like these are useful and graceful coin in every scene of life, and must be doubly grateful to Captain Haig, in the rugged solitudes of the rock-bound Godavery; but although the writer of these remarks is not entitled from his own personal knowledge, to join in the expressive testimony given by Colonel Bruce, he may at least be permitted to express the fervent hope, that the genius and the zeal of Captain Haig will soon be

transferred to a nobler arena, that will leave no sting of failure behind, and no keen pangs of sorrow, for talents wasted and energies misapplied.

GEORGE TAYLOR, C. E.

Madras, 27th September 1862.

RESOLUTION OF THE BOMBAY
GOVERNMENT.

Mr. Taylor should be thanked for his paper. It should be printed with his letter, and copies sent to the Chief Commissioner, Central Provinces, the Resident at Hyderabad, the Governments of India and Madras, and the Consulting Engineer for Railways.

1st February 1867.

